

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
29 December 2004 (29.12.2004)

PCT

(10) International Publication Number
WO 2004/113249 A3

(51) International Patent Classification⁷: **C04B 28/16**,
26/16, 40/06

(21) International Application Number:
PCT/IB2004/002049

(22) International Filing Date: 21 June 2004 (21.06.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2003/4815 20 June 2003 (20.06.2003) ZA

(71) Applicant (for all designated States except US): **CH
CHEMICALS (PTY) LTD [ZA/ZA]**; Evergreen Road,
Tunney Ext 7, 1401 Elandsfontein (ZA).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **HELLMANN, Neil,
Christopher [ZA/ZA]**; Evergreen Road, Tunney Ext 7,
Green Hills, 1401 Elandsfontein (ZA).

(74) Agents: **DONALD, Heather, June et al.**; Spoor & Fisher,
P.O. Box 41312, 2024 Craighall (ZA).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,
SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments

(88) Date of publication of the international search report:
14 April 2005

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: **POLYURETHANE-BASED CEMENTITIOUS LINER**

(57) Abstract: A composition for use as a liner, in particular for preventing spalling of rock particles and falls of ground at rock excavation sites, for the lining of swimming pools or any other water proofing application such as concrete coating for corrosion and environmental damage protection is provided. The composition includes a water-based dispersion of polyurethane and a cementitious material. The cementitious material and the dispersion are mixed together to form a polymer concrete comprising an interpenetrating network of inorganic and organic polymers. Anhydrous calcium sulphate forms part of the cementitious material to improve the hardening and curing properties of the liner. Epoxy is a further component of the liner, thereby to improve the adhesion properties of the liner.

WO 2004/113249 A3

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C04B28/16 C04B26/16 C04B40/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C04B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, COMPENDEX

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	EP 1 184 364 A (MITSUI CHEMICALS, INC) 6 March 2002 (2002-03-06) paragraphs '0002!', '0172!', '0177!', '0190!', '0192!', '0207!', '0208!', '0221!', '0232!', '0234!' examples 37-40 table 6 claims 4-6, 14-31	1-22, 41-68 23-40
X	EP 0 518 156 A (BAYER AG) 16 December 1992 (1992-12-16) page 3, line 55 - page 4, line 57 page 7, line 33 - page 8, line 31 example 14 claims 1-5, 7, 8, 10	1-18, 41-58

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

G document member of the same patent family

Date of the actual completion of the international search

18 February 2005

Date of mailing of the international search report

02/03/2005

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Burtan, M-M

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	DE 101 50 601 A1 (PCI AUGSBURG GMBH) 24 April 2003 (2003-04-24) paragraphs '0003! - '0005! claim 1 -----	23-40
A	US 2 254 099 A (BETTENDORF WILLIAM E) 26 August 1941 (1941-08-26) claims 1-12 -----	1-68
A	EP 0 026 905 A (HOECHST AKTIENGESELLSCHAFT) 15 April 1981 (1981-04-15) claims 1-10 -----	1-68
A	EP 0 753 417 A (PASQUOTTI, JEAN-JACQUES) 15 January 1997 (1997-01-15) claims 1-10 -----	1-68

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 1184364	A	06-03-2002	EP 1184364 A1	06-03-2002
			US 6515050 B1	04-02-2003
			WO 0177066 A1	18-10-2001
			JP 2001348256 A	18-12-2001
			US 2002045724 A1	18-04-2002
EP 0518156	A	16-12-1992	DE 4119665 A1	17-12-1992
			CA 2071051 A1	15-12-1992
			EP 0518156 A2	16-12-1992
			JP 5213645 A	24-08-1993
			NO 922166 A	15-12-1992
			US 5401798 A	28-03-1995
DE 10150601	A1	24-04-2003	NONE	
US 2254099	A	26-08-1941	NONE	
EP 0026905	A	15-04-1981	DE 2940785 A1	16-04-1981
			DE 3063163 D1	16-06-1983
			EP 0026905 A1	15-04-1981
EP 0753417	A	15-01-1997	FR 2736669 A1	17-01-1997
			EP 0753417 A1	15-01-1997